SIEMENS

MAMMOMAT 3000

RX

Update Kit for Stereotactic Biopsy Attachment

Installation and Setting Instructions

RX B7-230.033.02.01.02 english
Replaces: 11.94

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63 16 777

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Foreword

The purpose of these instructions is to update the stand so that the stereotactic biopsy attachment can be used.

Documents required

- Operating Instructions MAMMOMAT 3000
- Installation and Start-Up Instructions MAMMOMAT 3000
- Service Instructions MAMMOMAT 3000
- Wiring Diagram MAMMOMAT 3000
- Supplement to the Operating Instructions MAMMOMAT 3000, Stereotactic Biopsy Attachment

Test equipment required

- Digital multimeter

Tools required

- Standard assembly tools
- Soldering equipment
- Service PC (e.g. Siemens Nixdorf PCD3-NSX/20 or similar) with connection cable (96 60 978 RE999)
- Clinometer with the feature to measure minutes of arc (e.g. Wyler)
- File
- Adjustable strap (min. load capacity 1000 kp)
- Electrical angle nutrunner (24 mm socket)

Components required

- Update kit No. 1 (62 98 561). Is not needed from serial no. 2041.
- Update kit No. 2 (62 94 388). Is not needed from serial no. 2056.
- Update kit No. 3 (62 94 487). Is not needed from serial no. 2091.

Safety notes

Protective measures

It is essential to comply with section *Protective measures* in *Installation and Start-Up Instructions MAMMOMAT 3000*.

Mains supply off

Prior to any intervention in the equipment, disconnect it from the power supply with the main switch.

Remove the covers

1 Remove all the covers from the stand, which include front covers, side covers and rear cover.
For details, see section *Attaching the stand covers* in *Installation and Start-Up Instructions MAMMOMAT 3000* and do the removals in reverse order compared to the instructions in this section.

2 Remove all the covers from the swivel arm, which include front cover, side covers and shaft covers.
For details, see section *Attaching the swivel arm covers* in *Installation and Start-Up Instructions MAMMOMAT 3000* and do the removals in reverse order compared to the instructions in this section. The removal of the shaft covers is not described in this section but is easily done by unscrewing five screws on each cover.

Exchange of locking lever for object-table arm

Note

From MAMMOMAT 3000 number 2021, this exchange need not be taken into consideration.

Parts included

The locking lever assembly (part No. 62 98 587) included in the Update kit comprises the following parts:

Part	Part No.	Quantity
Shaft	62 48 046	1 pc
Locking pawl	62 48 244	1 pc
Holder	60 85 646	1 pc
Pressure spring	90 26 634	1 pc
Handle	61 92 236	1 pc
Locking washer	93 05 491	1 pc
Screw	60 23 709	2 pcs
Locktite	90 14 408	1 pc
Locking pin	60 53 268	1 pc
Locking ring	60 35 687	4 pcs
Locking pin	60 53 342	1 pc

Exchange

1 Switch the main switch on.
Press the ON-button on the generator's control panel to activate the system.

2 Check that the swivel arm is in position 0°. The angle of the swivel arm system is shown on the display on the lower front part of the stand. Turn the object table arm clockwise to end position.
For details, see section *Adjusting the direction of projection* in *Supplement to the Operating Instructions MAMMOMAT 3000.*

3 Set the stereo lever in stereo mode.
For details, see section *Preparing the swivel arm* in *Supplement to the Operating Instructions MAMMOMAT 3000*.

4 Press the OFF-button on the generator's control panel.
Switch the main switch off.

5 Using the clinometer, measure the inclination of the object table and note down this value (accuracy ±1').

Note

Do not rotate the swivel arm before finishing the exchange of the locking lever.

6 Remove the rotation stop screw (1/Fig. 1). Then turn the object table arm further clockwise to make the two screws (2/Fig. 1) accessible.

7 Loosen the screws (2/Fig. 1) that hold the locking lever (these screws are later to be replaced by new screws (60 23 709).

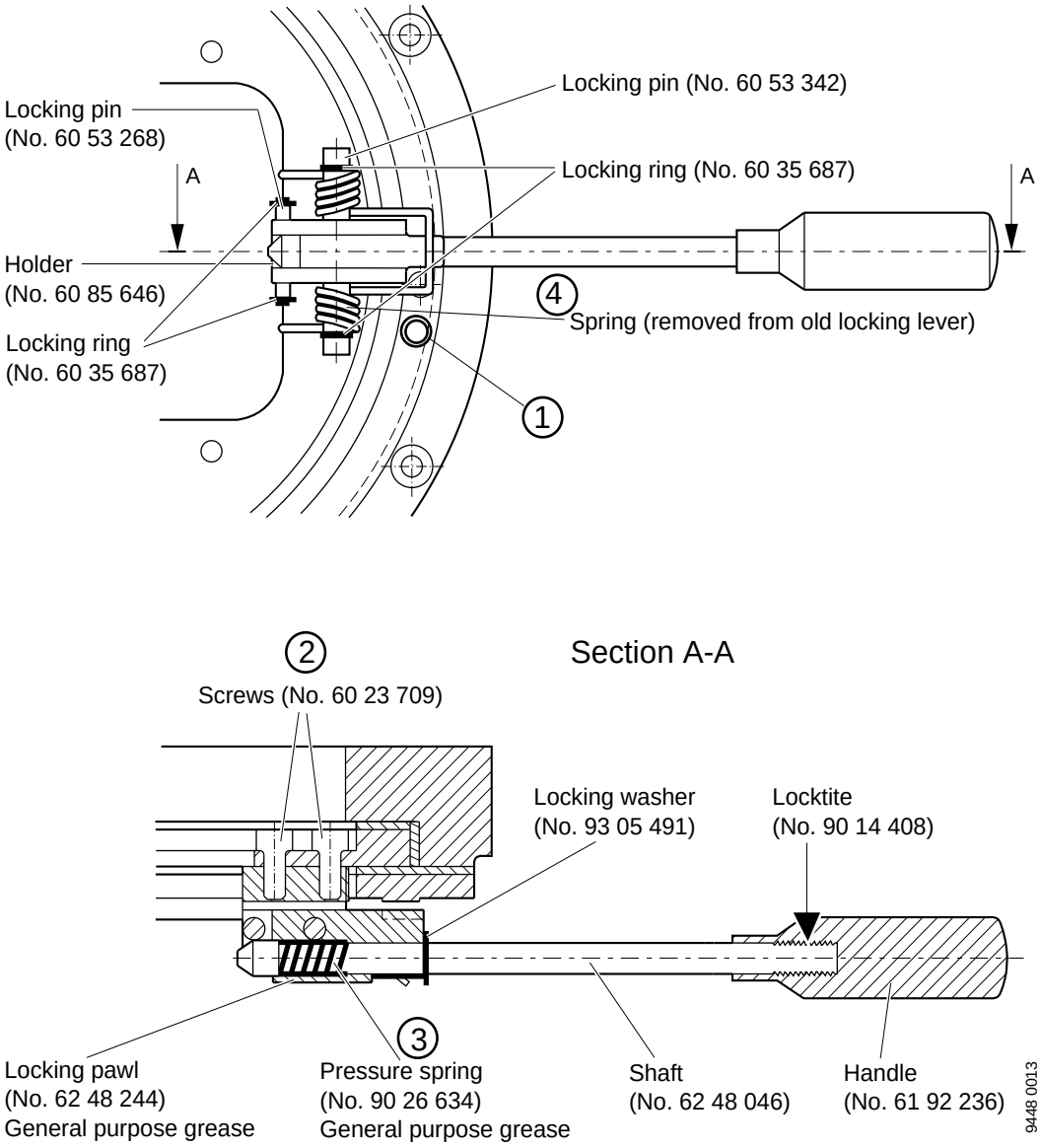

Figure 1 Locking lever, view from underneath and a section

8 Remove the old locking lever.

9 Attach the pressure spring (3/Fig. 1) to the shaft. Coat the shaft around the pressure spring with general purpose grease and place the shaft in the locking pawl.

10 Attach the locking washer to the shaft.

11 Coat the end of the shaft with Loctite and fasten the handle.

12 Coat the outside of the locking pawl with general purpose grease. Attach the locking pawl to the holder with locking pins and locking rings.

13 Remove the spring from the old locking lever and attach it to the new one.

14 Fasten the new locking lever loosely with two new screws (60 23 709) and bring spring (4/Fig. 1) in position.

15 Work up right and left shaft cover with a file according to the drawing in *Figure 2*.

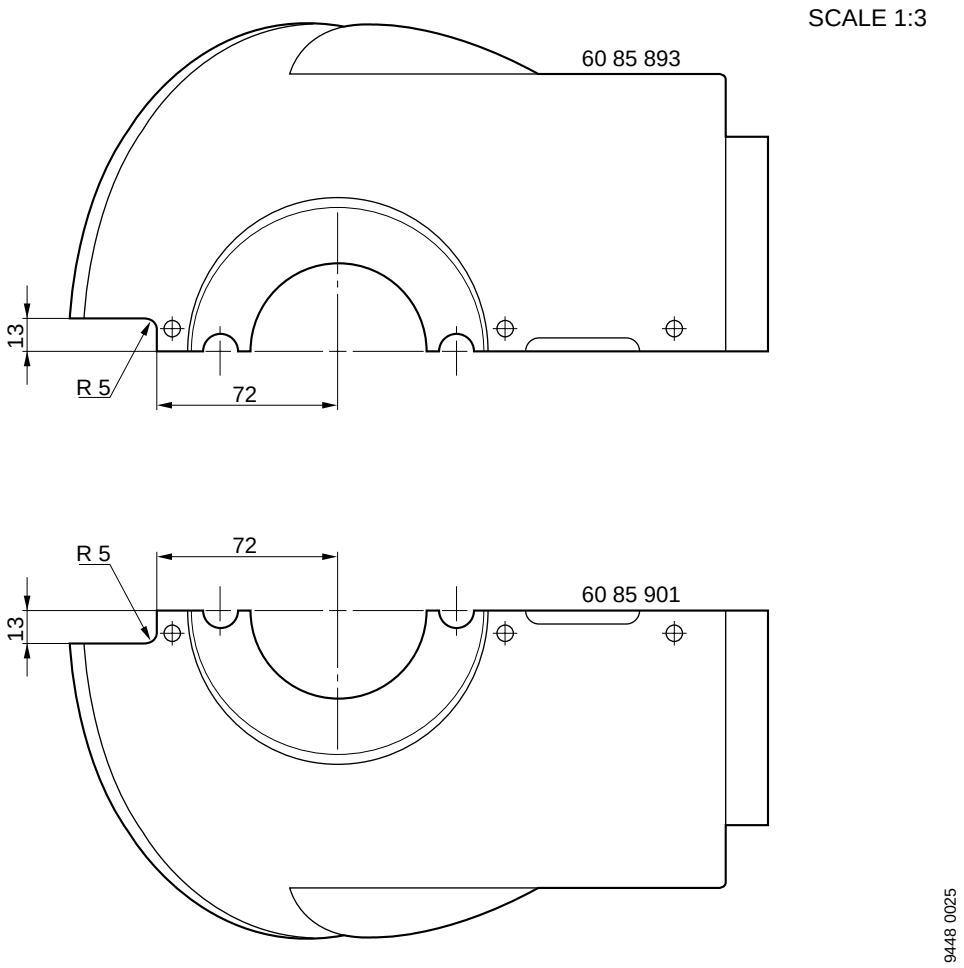

Figure 2 Drawing for working up right and left shaft cover

Installing new software version

Parts included

The new software version (part No. 63 15 704) included in the Update kit comprises the following parts:

Part	Part No.	Quantity
Stand PROM D801	63 15 704	1 pc
Control Panel PROM D740/I10, IONTOMAT PROM D701/J113, Master PROM D702/J39	63 15 720	1 pc
Soldering tin	65 54 737	10 g

Installation

1 Switch the main switch on.
Press the ON-button on the generator's control panel to activate the system.

2 Using the service program (version 1.0), enter "Main menu" and choose "backup". Perform a backup of the control panel to a diskette.

3 Press the OFF-button on the generator's control panel.
Switch the main switch off.

4 Change polarity of stereo lever switch S860 (switch for stereotactic or normal mode) by disconnecting the blue wire from pin 3 and soldering it to pin 2, see *Figure 3*.
To facilitate the soldering, loosen the nuts and take out the switch, see *Figure 3*.

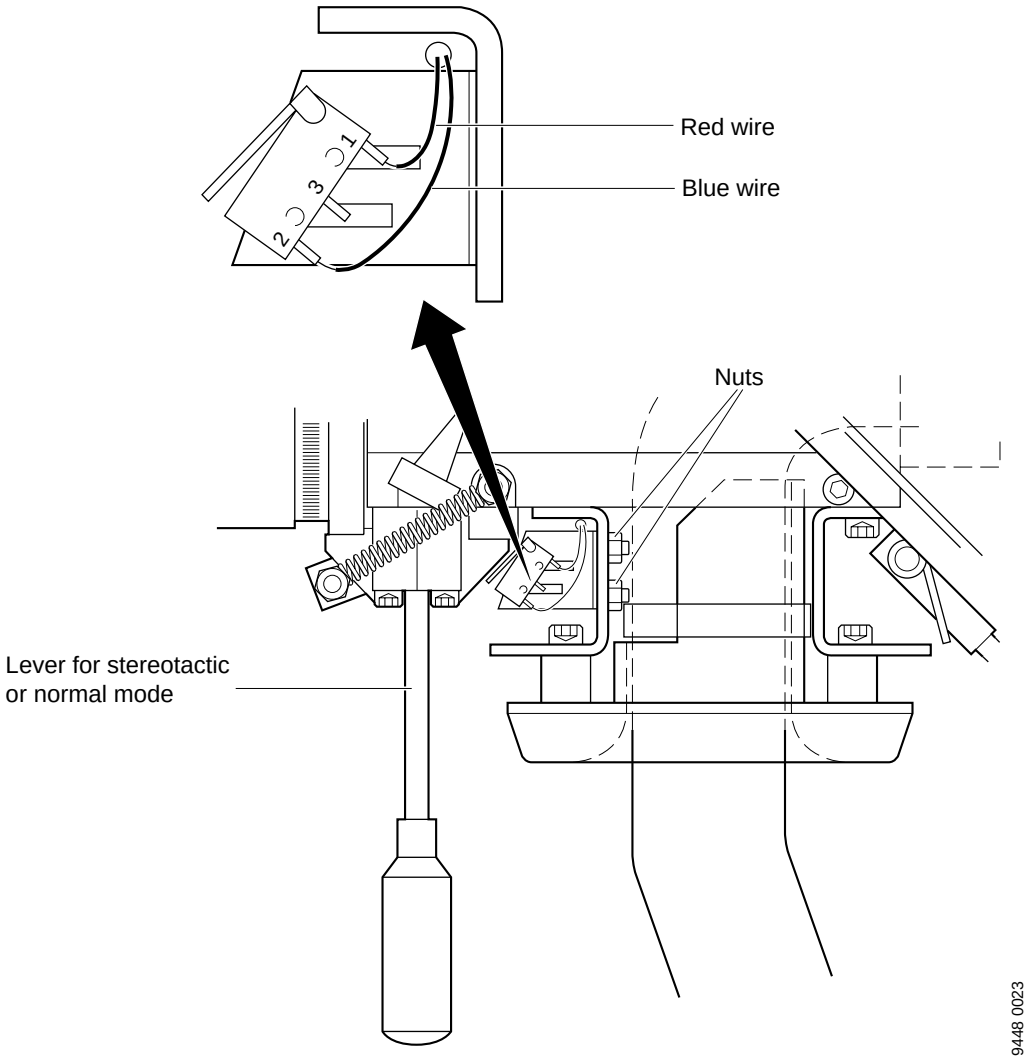

Figure 3 Changing polarity of stereo lever switch

5 Remove the front cover from the generator. For details, see section *Generator, removal of covers* in *Service Instructions MAMMOMAT 3000.*

6 Exchange four PROMs (Control Panel, Master, IONTOMAT and Stand):

Note

Make sure that the PROM is positioned with its semi-circular mark in the same direction as the mark on the actual p.c. board. Use ESD tools.

I10 on circuit board D740, control panel PC board. For details, see section *Principle Diagram, Control Panel* in *Wiring Diagram MAMMOMAT 3000.*
To have access to circuit board D740, the shielding grid cover should be removed. Loosen the screws on the side holding the grid cover and remove it.

J39 on circuit board D702, Master PC board. For details, see section *Generator PC Board Overview* in *Wiring Diagram MAMMOMAT 3000*.

J113 on circuit board D701, IONTOMAT PC board. For details, see section *Generator PC Board Overview* in *Wiring Diagram MAMMOMAT 3000*.

I9 on CPU board D801. For details, see section *CPU Board Internal, Generator Interface* in *Wiring Diagram MAMMOMAT 3000*.

7 Using the service program (version 1.0), enter "Main menu".
Switch the main switch on. Press the ON-button on the generator's control panel.
An error will be displayed due to the new PROM version. Press limit button.

8 Using the service program, load the backup from the diskette into the control panel.
An error will again be displayed on the control panel, due to the changed checksum.
Press the limit button on the control panel.

9 Check the exposure release and the rotation and lift movements for proper function, see *Installation and Start-Up instructions MAMMOMAT 3000*.

10 Press the OFF-button on the generator's control panel.
Switch the main switch off.
Remount the shielding grid cover and the front cover onto the generator. All other covers will be remounted later.

Attaching the thickness adapter board

Parts included

The thickness adapter (part No. 62 98 595) included in the Update kit comprises the following parts:

Part	Part No.	Quantity
Cable X809	62 98 538	1 pc
Circuit board D809	62 85 667	1 pc
Label	90 84 518	1 pc
Label	63 14 590	1 pc
Shrink tubing	66 11 107	60 mm
Nut	60 34 565	2 pcs
Soldering spiral	63 02 509	3 pcs
Label	64 55 398	1 pc
Soldering tin	65 54 737	10 g
Threaded spacer	60 74 165	2 pcs
Cable tie	62 21 753	5 pcs

Attachment

1 Unscrew the two nuts that are placed at the middle/right of the existing circuit board marked D801, see *Figure 4*.

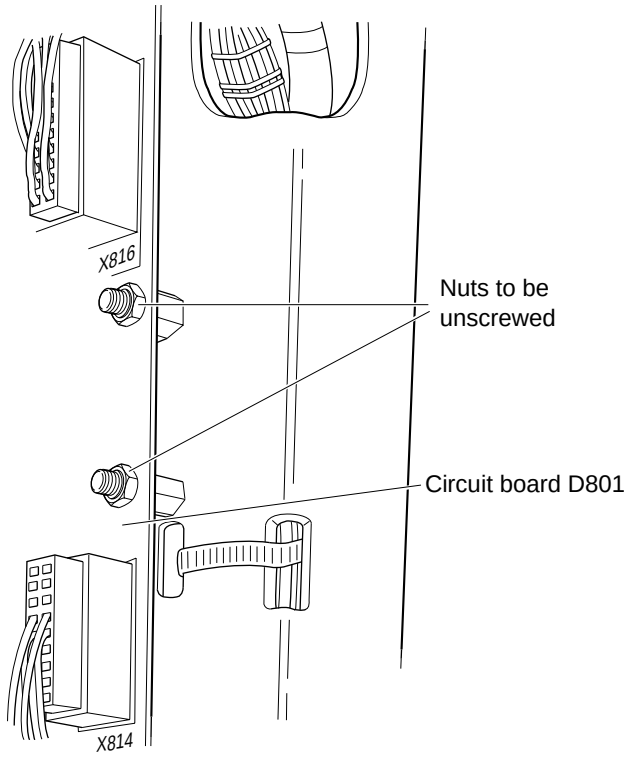

Figure 4 Unscrewing nuts of circuit board D801

2 Fasten the existing circuit board D801 with two threaded spacers. Attach the new circuit board D809 on the spacers and fasten it with two new nuts, see *Figure 5*.

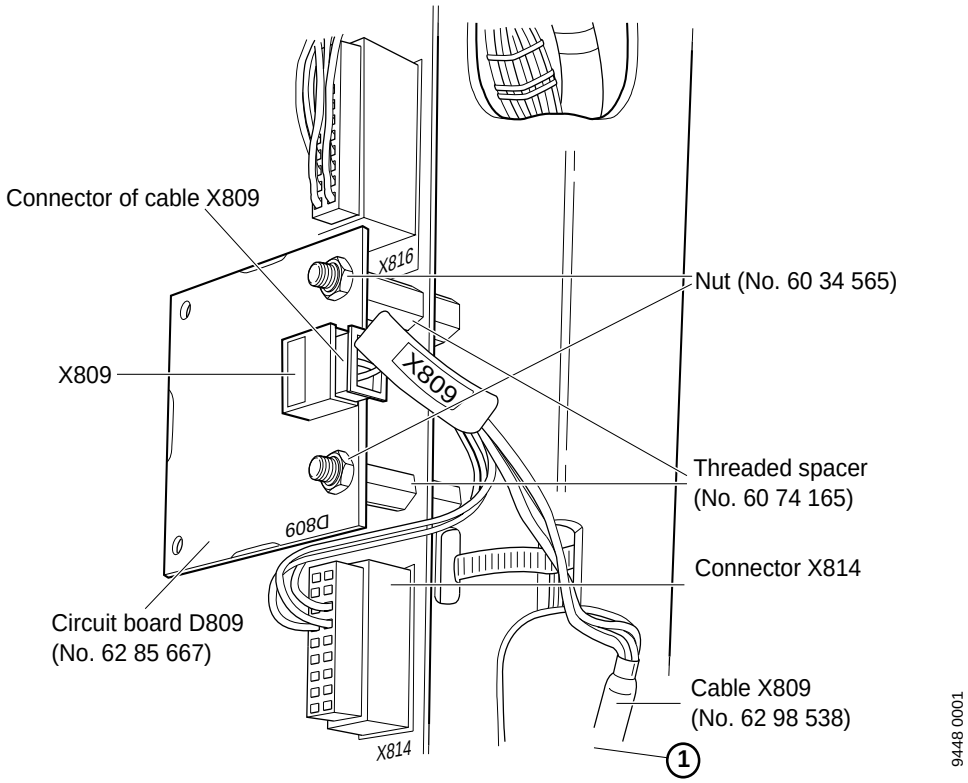

Figure 5 Fasten circuit board D809

3 Attach cable connector X809 to X809 on circuit board D809, see *Figure 5*.

4 Let the cable to X809 go down to connector X885 at the inside of the stand (1/Fig. 5). Attach the cable with cable ties along the existing cable harness.

5 Connect the three wires from the cable connector X809) to connector X814 just below the circuit board D809, see *Figure 5* and *Figure 6*. Blue wire to position 11, red to position 12 and black to position 13.

Note

Be sure to connect the wires with the barb in the right direction. Check that the wires are firmly locked in the connector housing.

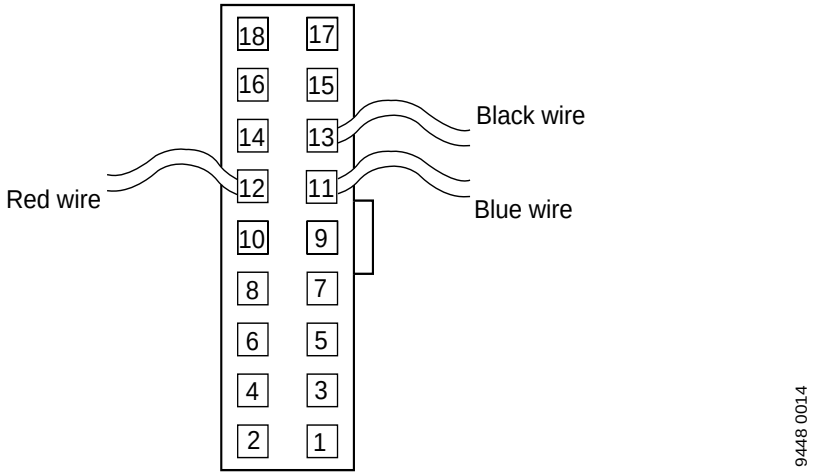

Figure 6 Connector X814

6 Connect black earth wire from cable X809 to the stand's earth screw placed just below circuit board D801, see *Figure 7*.

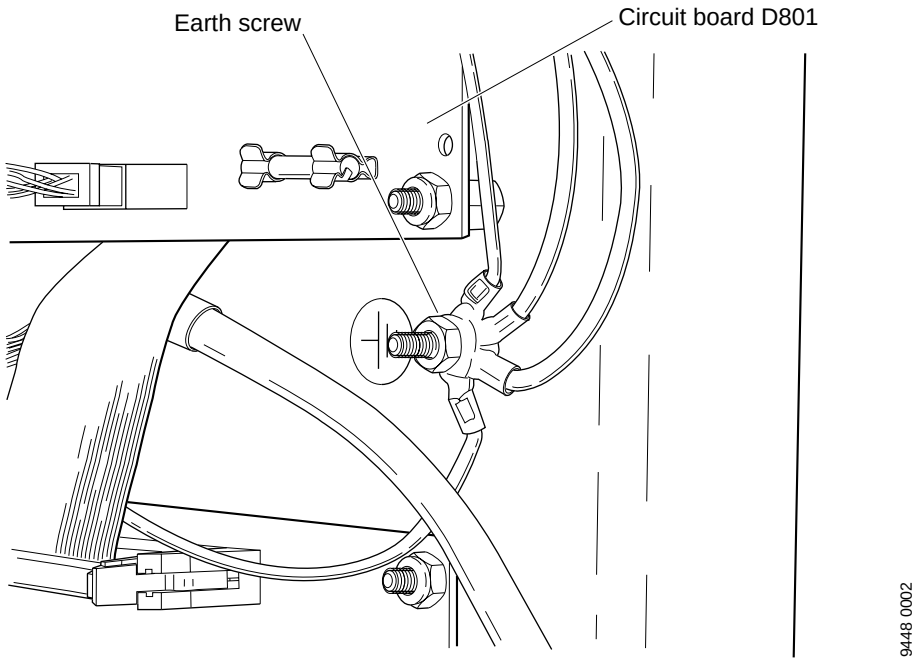

Figure 7 Earth screw

7 At the inner side of connector X885, cut the three wires, one at a time, from positions 1, 7 and 13 between the connector and the cable harness. To these wires, joint the three wires from cable X809. White wire to position 1, brown to position 7 and green to position 13, see *Figure 8*. Use solder 65 54 737 and spiral 63 02 509 together with shrink tubing 66 11 107. The connector can be taken out at the back of the stand.

Warning

Be aware of the sharp metal curtain when performing this work

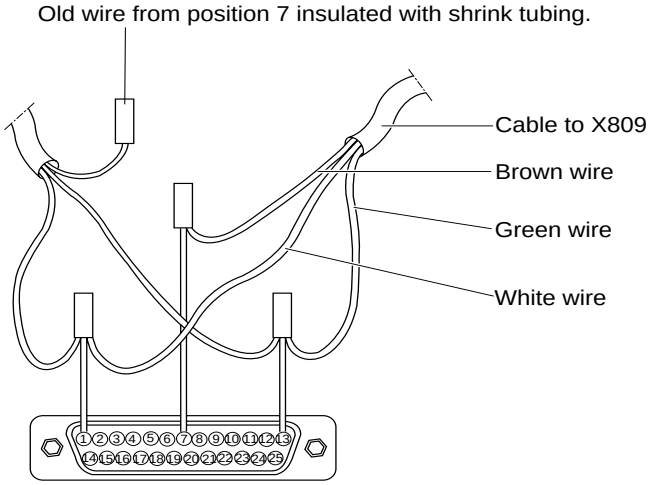
Old wire from position 7 insulated with shrink tubing.
Cable to X809
Brown wire
Green wire
White wire
1 2 3 4 5 6 7 8 9 10 11 12 13
14 15 16 17 18 19 20 21 22 23 24 25
9448 0015

Figure 8 Jointing the wires from cable X809

Note

The old wire to position 7 will not be used. Insulate this wire.

8 Attach label marked "D809" to the stand to the right of circuit board D809, see *Figure 9*. Attach label marked "WARNING" to the stand to the right between circuit board D801 and D802. Attach label marked "ATTENTION" to the stand to the left between circuit board D801 and D802.

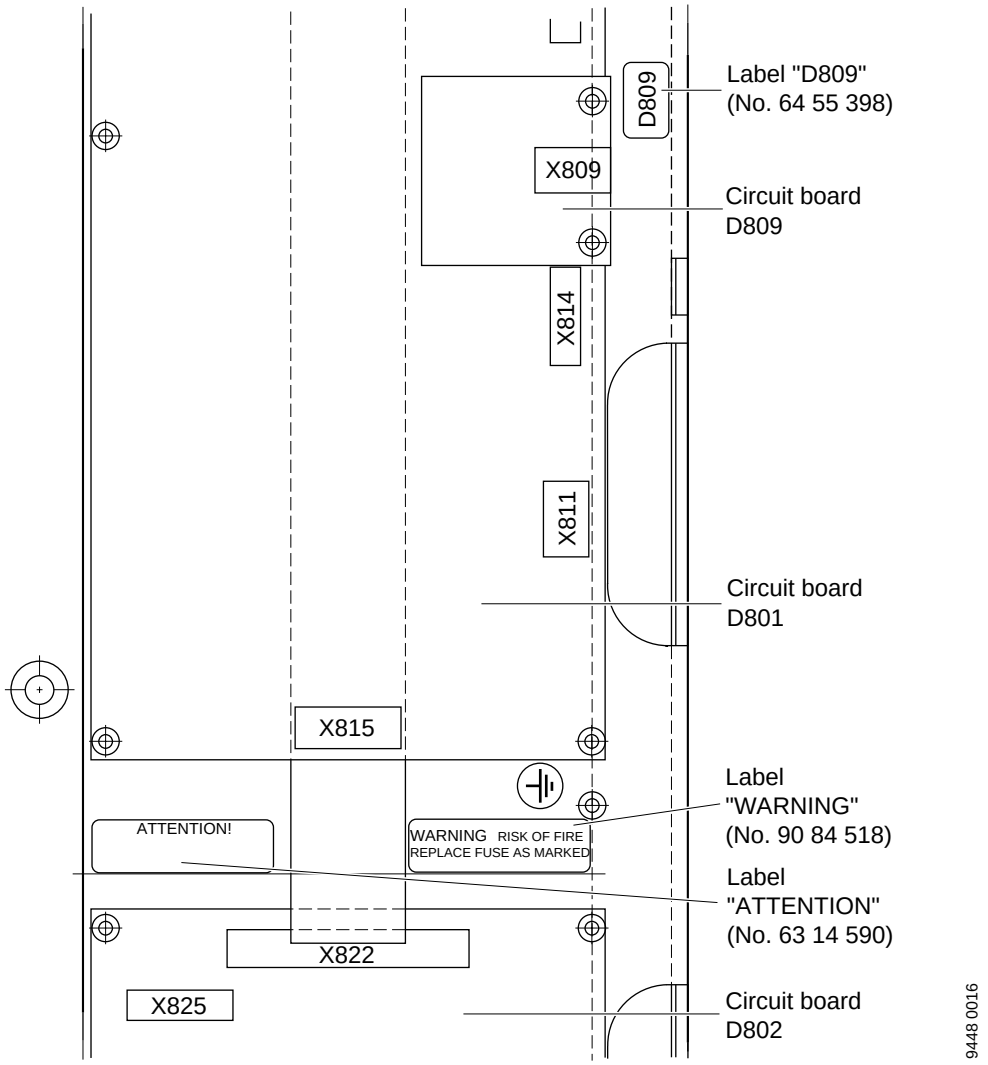

Figure 9 Labels

Exchange of tilt switch

Parts included

The tilt switch (part No. 62 98 579) included in the Update kit comprises the following parts:

Part	Part No.	Quantity
black wire	62 93 901	1 pc
circuit board D810	63 15 522	1 pc
washer	62 93 919	1 pc
switch holder	62 93 950	1 pc
cam	62 93 893	1 pc
switch	62 93 968	1 pc
left cam	62 93 976	1 pc
washer	62 93 992	1 pc
screw	60 23 428	4 pcs
threaded spacer	66 49 396	4 pcs
screw	60 22 966	2 pcs
screw	60 23 196	2 pcs
screw	60 90 161	2 pcs
washer	65 87 497	4 pcs
threaded spacer	61 21 276	2 pcs
screw	60 23 121	2 pcs
label	64 55 398	2 pcs
cable tie	62 21 753	8 pcs
cable tie with screw	66 24 365	6 pcs

Attaching of new switch

1 Attach the left cam to the cam with two screws and double washers at each screw, see *Figure 10*.
Do not tighten the screws. The left cam shall be adjusted later.

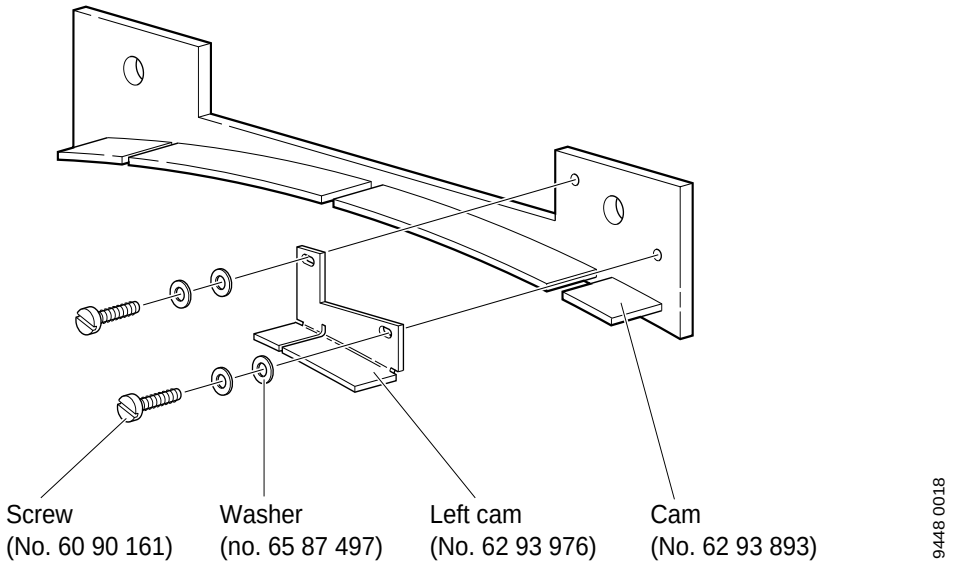

Figure 10 Cam assembling

2 Attach the assembled cam to the back of the swivel arm (just below the emergency stop button) with two screws and a washer, see *Figure 11*.
Do not tighten the screws. The cam shall be adjusted later.

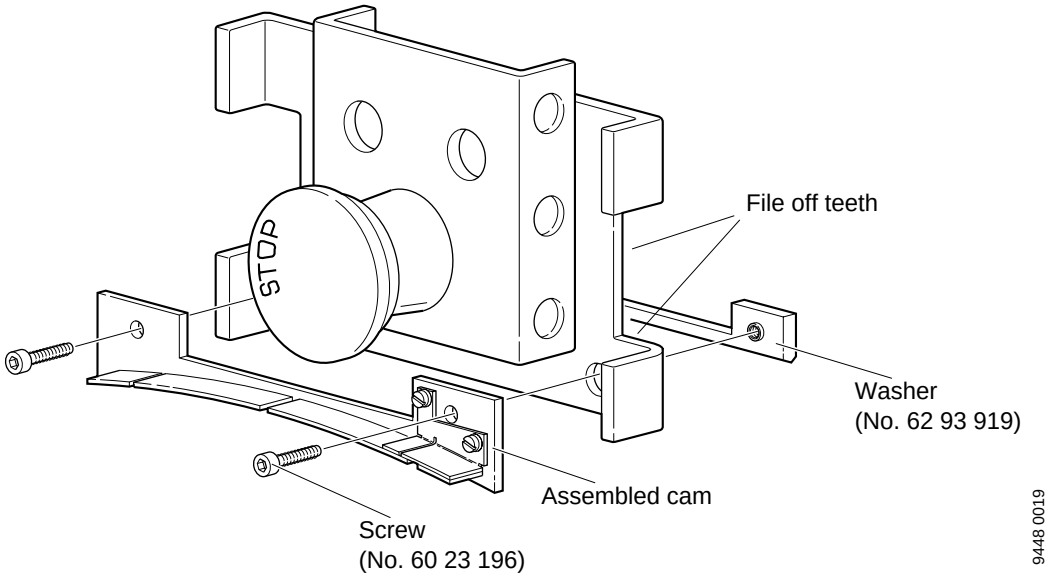

Figure 11 Attaching of cam assembly

3 Attach the switch to the switch holder with two screws and a washer, see *Figure 12*.

Note

The switch is very fragile. For this reason, be very careful when attaching the switch or performing any movement that could affect the switch.

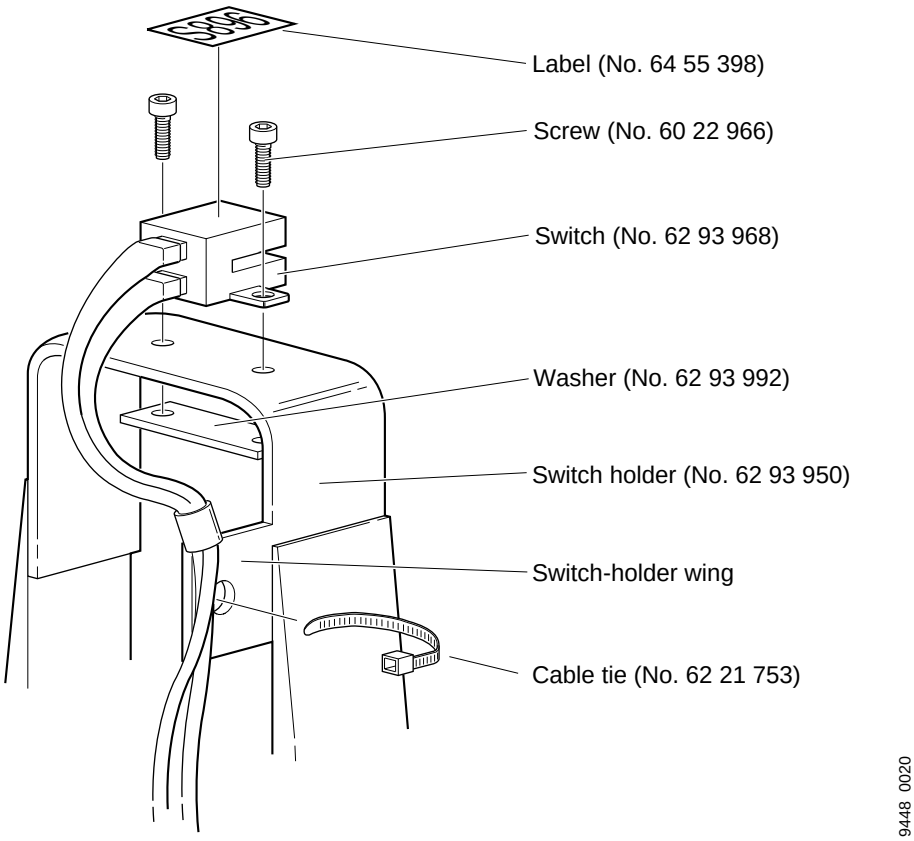
S896
Label (No. 64 55 398)
Screw (No. 60 22 966)
Switch (No. 62 93 968)
Washer (No. 62 93 992)
Switch holder (No. 62 93 950)
Switch-holder wing
Cable tie (No. 62 21 753)
9448 0020

Figure 12 Switch attaching

4 Attach the label marked "S896" to the switch, see *Figure 12*. Stretch the switch cable carefully as much as possible and attach it to the switch-holder wing with a cable tie, see *Figure 12*.

Note

The locking of the cable tie must be pointing inwards and the cable tie must be cut off, see Figure 13.

5 Remove the cable guide and the earth screw, see *Figure 13*.

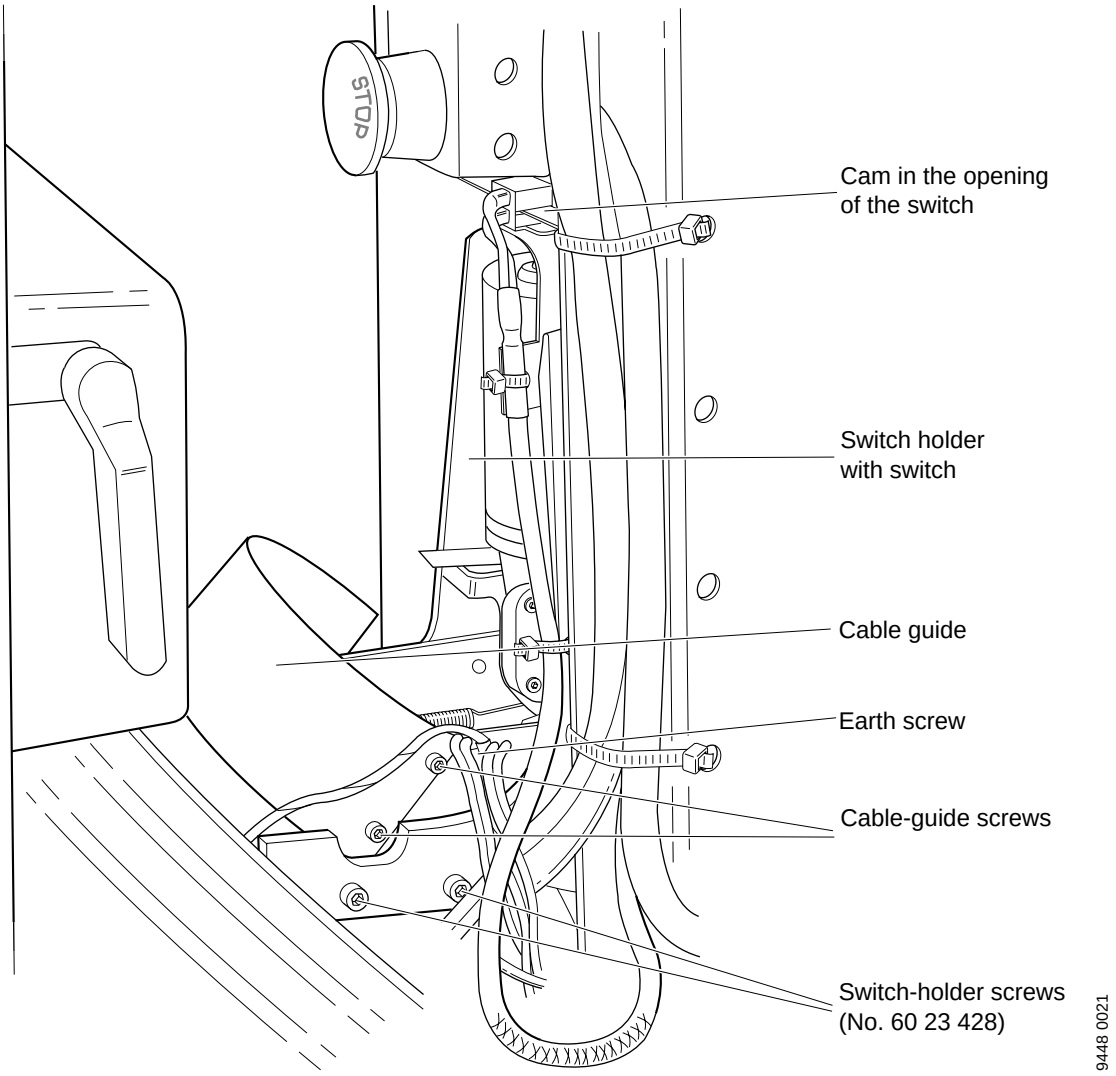

Figure 13 Attaching switch holder

6 Position the switch holder carefully at the swivel arm shaft so that the cam is positioned in the opening of the switch, see *Figure 13*. Be sure not to damage the switch. Attach the switch holder to the shaft with four screws and four threaded spacers (No. 66 49 396), see *Figure 13*. The threaded spacers shall be placed between the shaft and the switch holder.

7 Check that the compression motor can move freely under the switch holder by pushing and pulling the motor while observing that it is not touching anything.

8 Attach the cable guide and the earth screw.

Attaching of circuit board

1 Attach the circuit board marked "D810" with two screws and two threaded spacers at the top and back of the swivel arm. The LED on the circuit board shall be pointing outwards, see *Figure 14*.

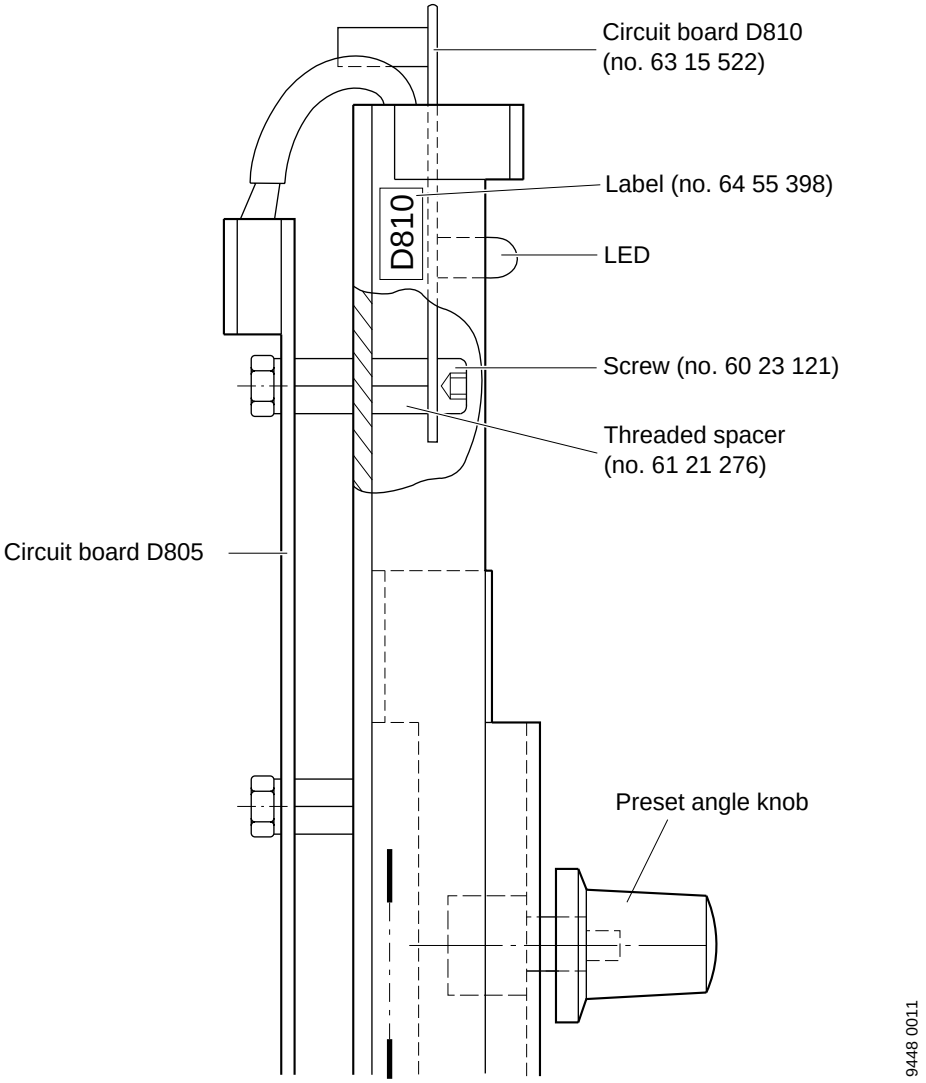

Figure 14 Attaching circuit board D810

2 Attach the label marked "D810" close to the circuit board, see *Figure 14*.

Wiring

1 Loosen the yellow and brown wire from the old switch, see *Figure 15*.

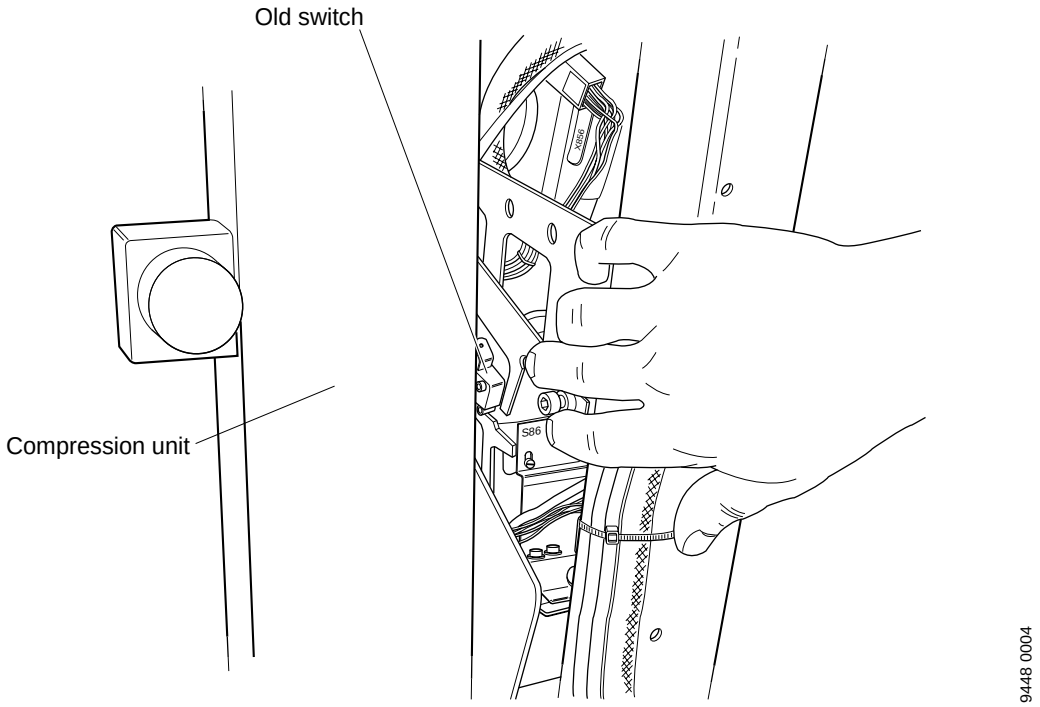

Figure 15 Old switch

2 Remove the old switch after testing stereo operation.

3 Connect the yellow wire from the old switch to X83 at circuit board D810 and the brown wire to X82, see *Figure 16*.

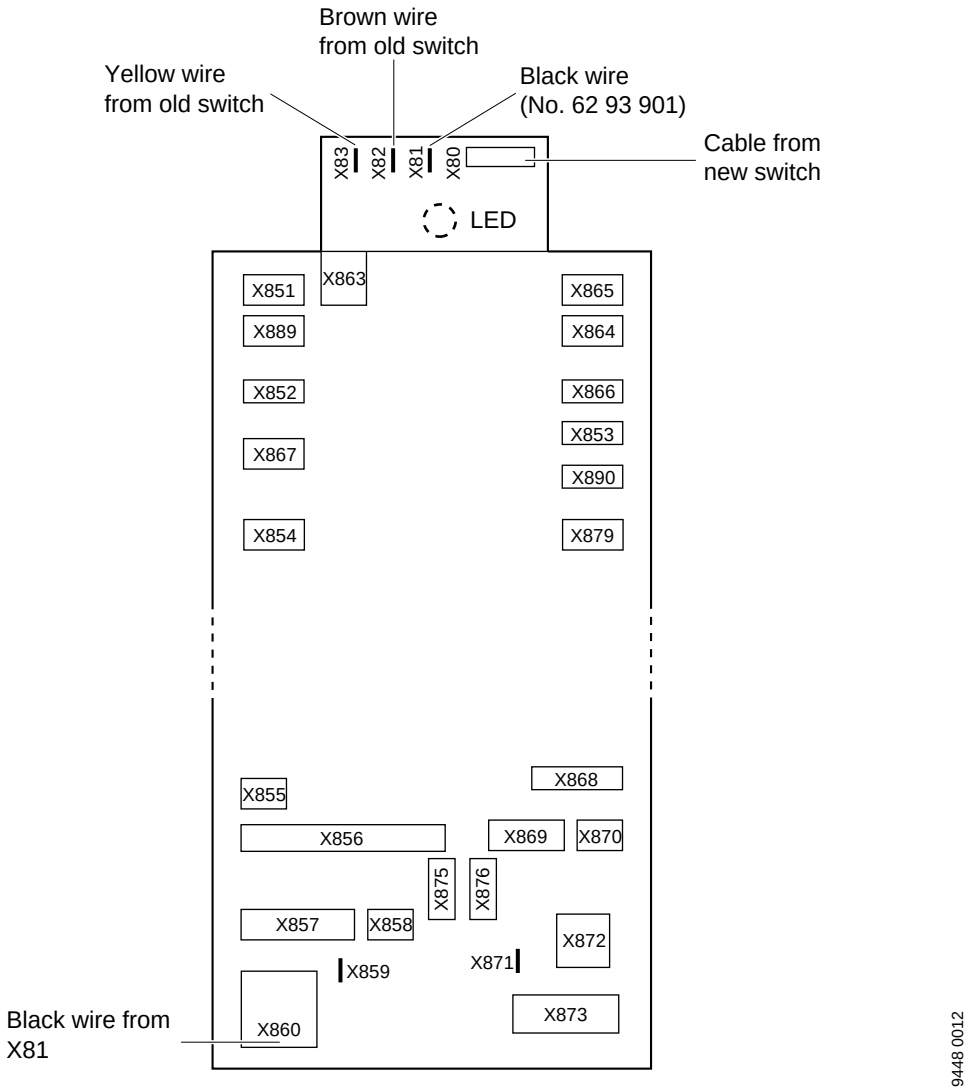

Figure 16 Connectors on circuit boards D810 and D805

4 Connect the black wire from X81 to pin number 2 in connector X860, see *Figure 16* and *Figure 17*.

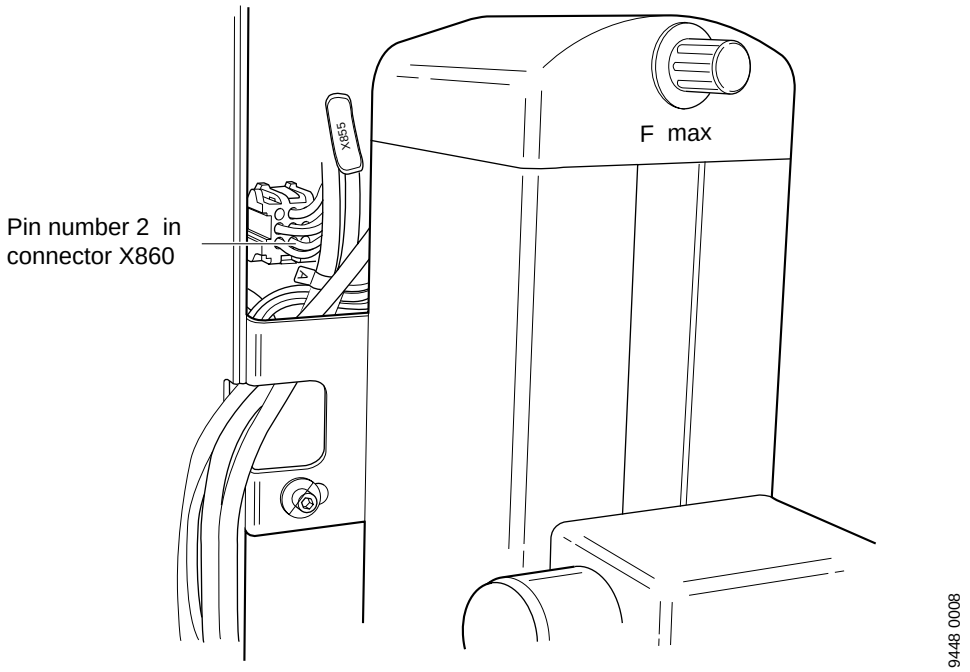

Figure 17 Connector X860

5 Place the switch cable along the left side of the swivel arm and under the connectors X854 and X879 at circuit board D805, see *Figure 16*. Then let the cable run outside the connectors X879, X890, X853, X866, X864 and X865 at circuit board D805 before connecting the cable to X80 at circuit board D810, see *Figure 16*.
This cable is later to be strapped as described in the next section *Moving of cables*.

Moving of cables

A cable harness consisting of three cables is running from circuit board D805, along the right side of the swivel arm down to the swivel arm shaft. Two of the cables shall be moved to the other side of the swivel arm.

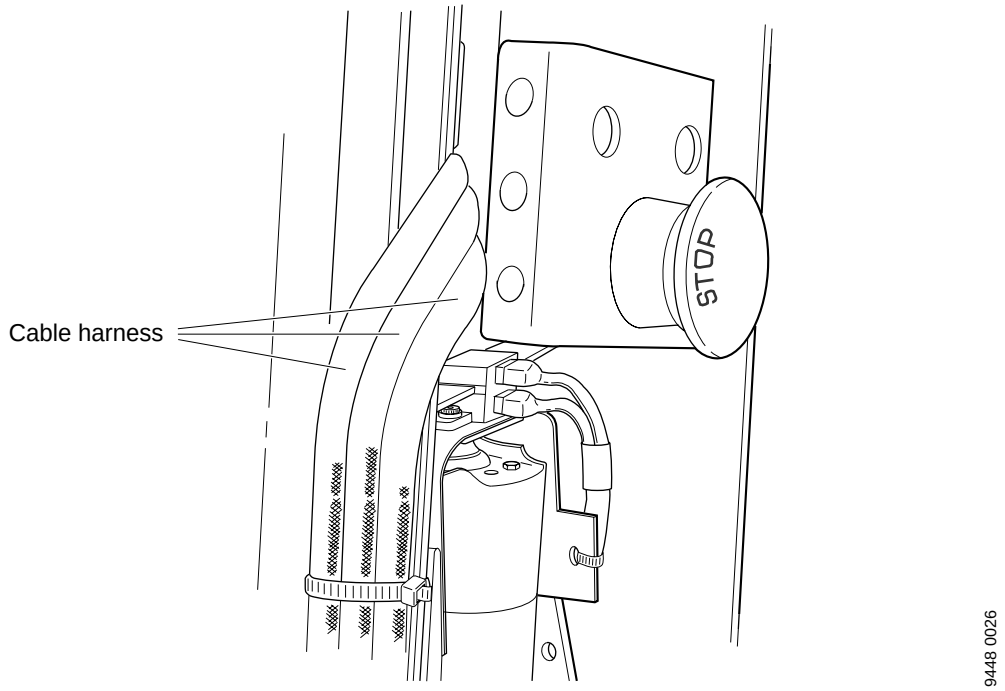

Figure 18 Cable harness consisting of three cables

1 Locate the cable harness, see *Figure 18*.

2 Remove all cable ties that hold the three cables at the circuit board, along the swivel arm and at the swivel arm shaft.

3 Switch on the mains.
Press the ON-button on the control panel to activate the system.
Rotate the swivel arm 20° to make further steps easier (for details, see section *Adjusting the direction of projection* in *Supplement to Operating Instructions MAMMOMAT 3000, Stereotactic Biopsy Attachment.*
Press the OFF-button on the control panel and switch off the mains.

4 Loosen the connectors from X857 and X869 on circuit board D805, see *Figure 19*.

5 Loosen the earth wires from X859 and X871 on the same circuit board.

6 Disconnect the two connectors marked X858 and X870.

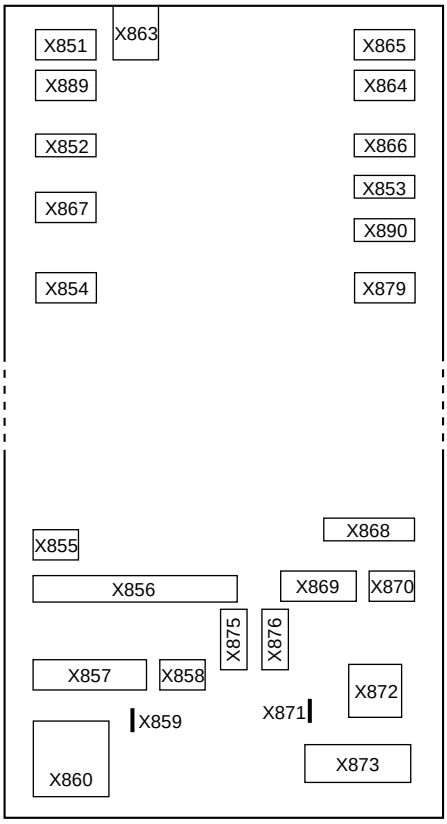

Figure 19 Connectors on circuit bard D805

7 Two of the three cables are now free to be removed. Carefully pull out these two cables and let them run through the hole in the opposite side of the emergency stop button so that it will be possible to reconnect the connectors, see *Figure 20*.

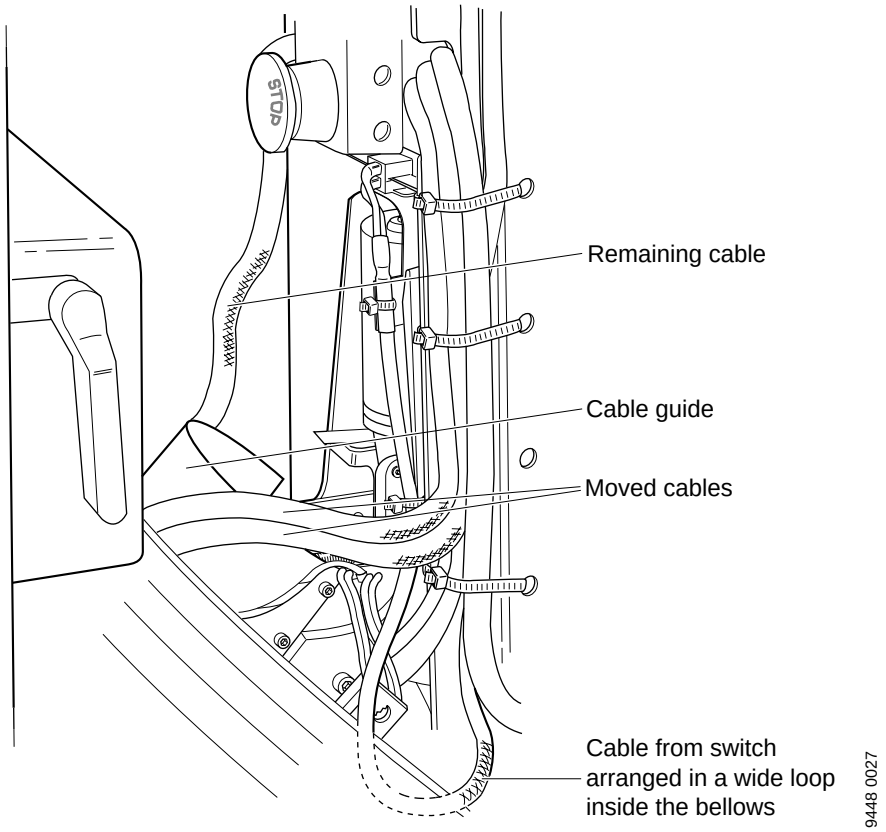

Figure 20 Cable positioning

8 Reconnect all six connectors, see step 4. Be sure to connect the connectors to correct positions. Be careful when strapping the insulating tubing over X858 and X870 not to damage the wires or separate the connectors.

9 Strap the two moved cables and the cable from the switch along the swivel arm according to *Figure 20*.
If necessary, cut some cable ties that hold the existing cable harness along the swivel arm, so that the three new cables can be strapped together with the existing cables.

Note

The cable from the switch must be arranged in a wide loop at the bottom to assure free rotation of the swivel arm, see Figure 20.

---

10 Fasten the remaining cable with one cable tie at the right side of the swivel arm, see *Figure 20*.

11 Strap the two moved cables and the remaining cable at the swivel arm shaft according to *Figure 21*.
Check that the object-table arm is in right position, see the rectangle and cables in *Figure 21*. If necessary, rotate the object-table arm before strapping the cables (for details, see section *Pivoted object-table arm* in *Operating Instructions MAMMOMAT 3000*).

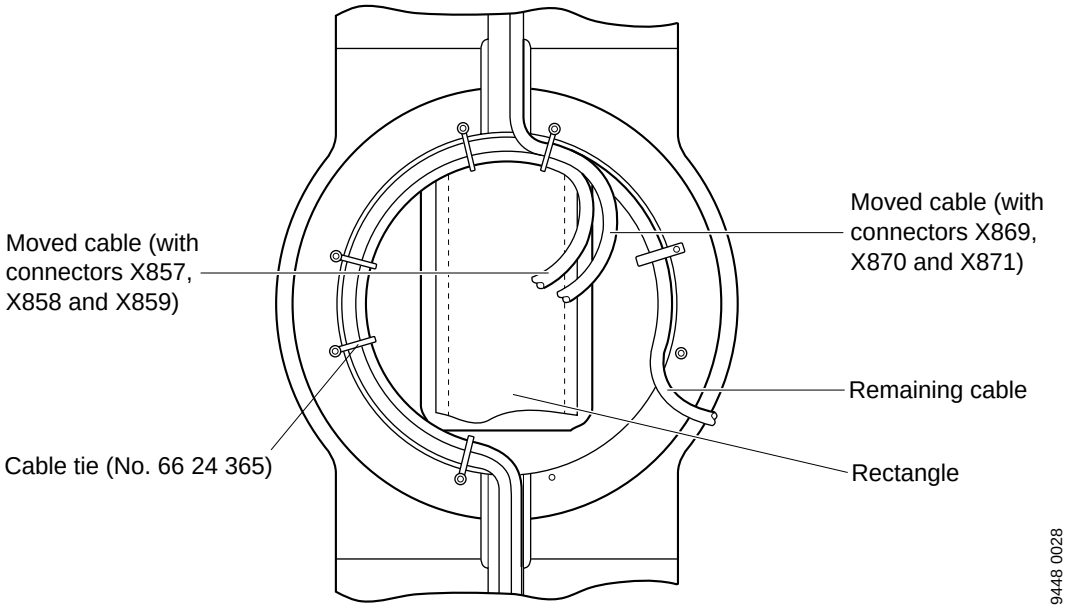
Moved cable (with connectors X857, X858 and X859)
Moved cable (with connectors X869, X870 and X871)
Remaining cable
Cable tie (No. 66 24 365)
Rectangle
9448 0028

Figure 21 Strap positions at the swivel arm shaft

12 Rotate the object-table arm from end position to end position. Check that the cables are not touching any sharp edges or are totally outstretched when rotating the object-table arm. Use the cable guide for the cables to slide on.
If necessary, cut or change positions of some cable ties.

13 Fasten the earth wire harness (connected to the earth screw positioned close to the cable guide) with a cable tie around the two cables as shown in *Figure 22*.

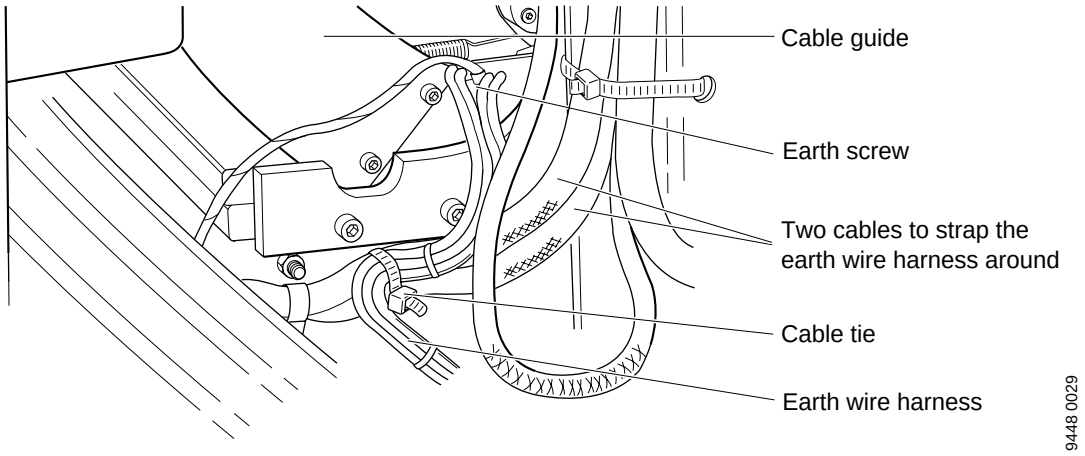

Figure 22 Fastening the earth wire harness

Included parts

The crank and rotation motor included in the Update kit comprise the following parts:

Part	Part No.	Quantity
Adjustable strap	Standard	1 pc
Modified crank		1 pc
Cable tie	60 89 593	1 pc
Cable tie	62 21 753	1 pc
Modified rotation motor		1 pc

Tools required

- Standard assembly tools.
- Digital multimeter (DMM)

Precautions

NOTE!

Exchange of crank and rotation motor must be performed in sequence according to this instruction.

---

1 Remove all covers from stand and swivel arm system.

2 Raise the swiwel arm system to the upper position.

3 Fit adjustable strap to secure the swiwel arm system in upper position.

WARNING!

The swiwel arm system weight is about 115 kg. Improper securing may cause personal injuries and damage to equipment.

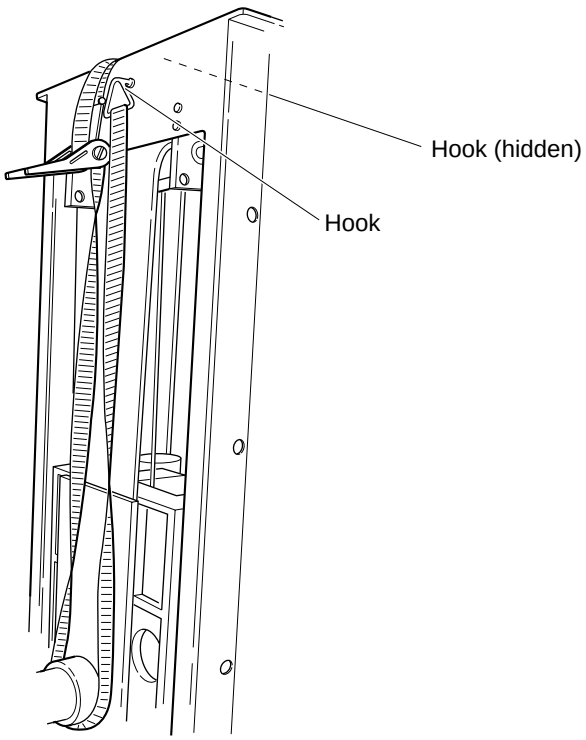

Figure 1 Securing of swiwel arm system

4 Move tube head to 0°.

5 Lock in position by pushing the stereo lever to rear position.

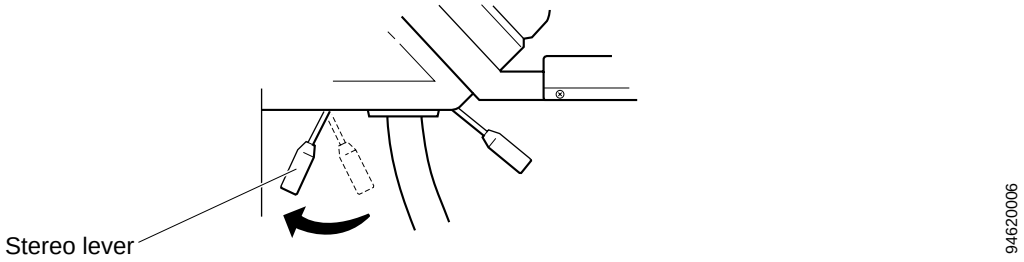

Figure 2 Stereo lever

6 Press the OFF-button on the generator's control panel to deactivate the system.

7 Switch the main switch off.

Exchange of crank

Removal of crank

WARNING!

The slackening of the balancing system must be done with care. Improper action may cause personal injuries.

---

1 Attach a strap (60 89 593) across the wire near the progressive wheel at the top of the stand to prevent the wire to jump of the wheel. Let the strap be installed during the entire procedure.

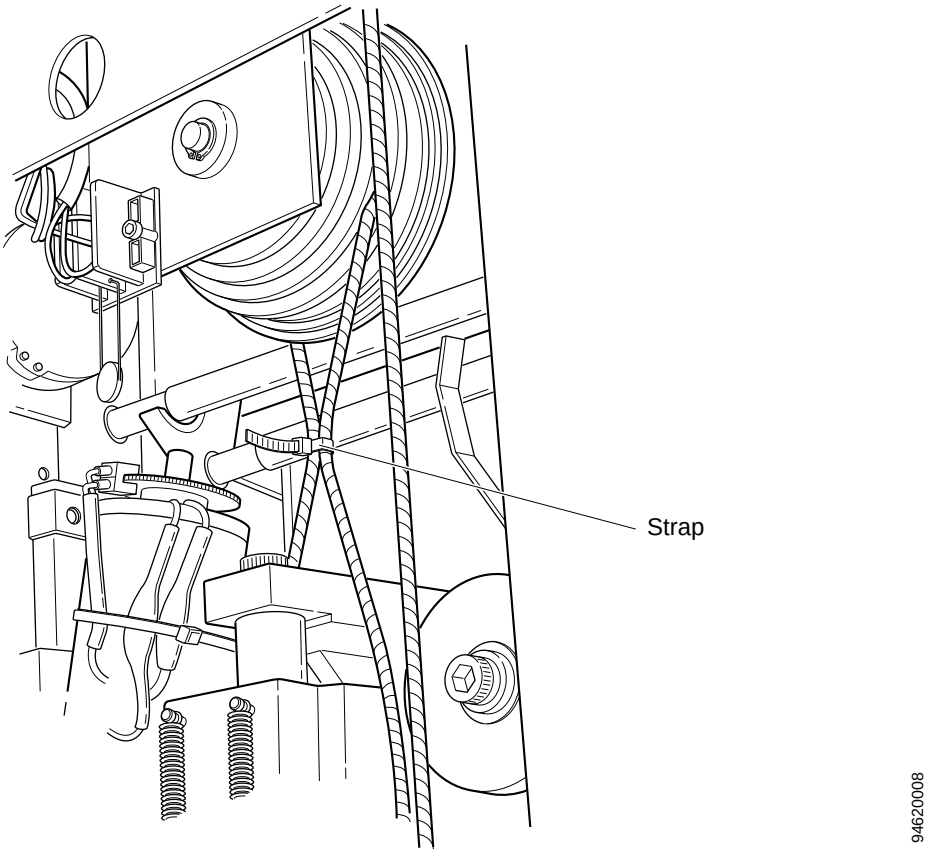

Figure 3 Strapping of wire

2 Attach a 24 mm socket wrench to the tightening screw and start slackening the balancing spring.

3 Tighten the strap as the wire starts to slacken.

4 Continue slackening the balancing spring.

5 Remove two Allen screws holding the carriage with an 8 mm key.

6 Remove the carriage. The wire must be disconnected from the carriage's wheel.

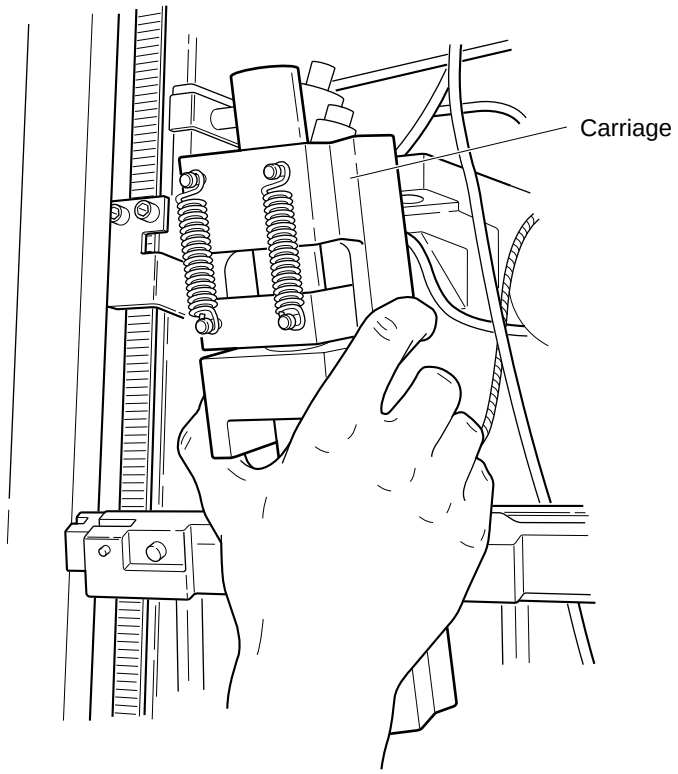

Figure 4 Removal of carriage

7 Remove six Allen screws with a 5 mm key and remove crank.

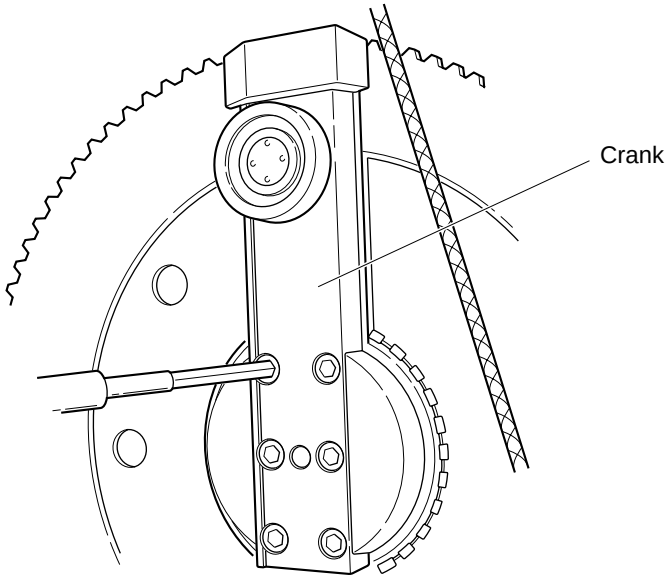

Figure 5 Removal of crank

Installation of crank

1 Install the modified crank with the Allen screws removed in item 6 above. Use the new upper holes of the modified crank.

Exchange of rotation motor

Removal of motor

WARNING!

The sharp edges of the metal curtain may cause personal injuries.

---

1 Be sure that the electro-mechanical brakes for rotation movement of swiwel arm system are engaged.

2 Cut off the strap that holds the cables to the motor.

3 Disconnect cables X826 and X888 from the motor.

4 Remove three Allen screws with a 5 mm key.

5 Disconnect the chain from the gear wheel of the motor and remove motor.

NOTE!

To prevent the motor from falling down, hold it with one hand while removing the last screw.

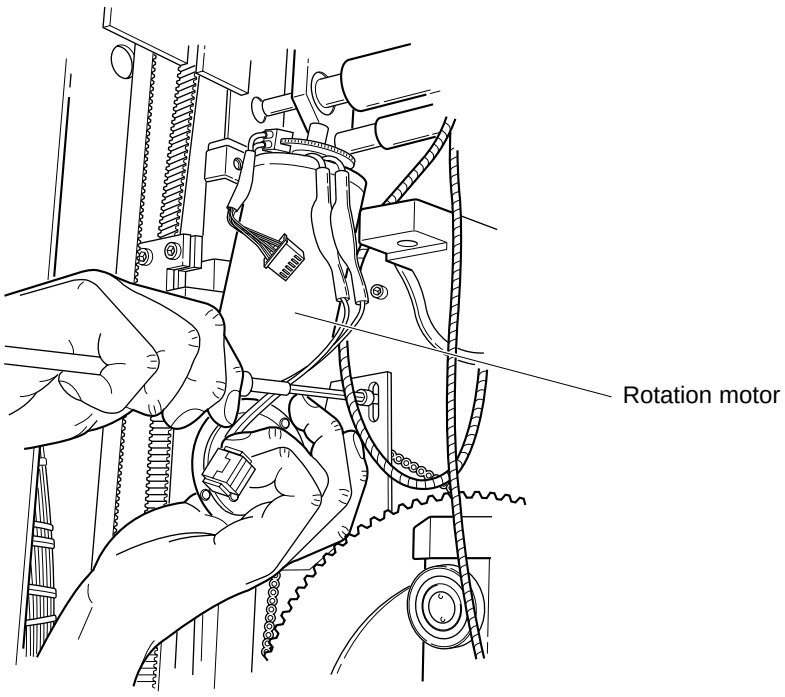

Figure 6 Removal of motor

Installation of motor

1 Install modified rotation motor with Allen screws removed in item 4 above.

Check that the chain is installed correctly and that the cables are not squeezed, i.e. runs over the bracket and behind the motor.

2 Fit the chain on the large gear wheel of the swiwel arm system.

If nescessary push the swiwel arm system carefully clockwise or counterclockwise.

3 Tighten the chain slightly by means of the oval holes of the motor.

4 Fit carriage. The wire must be connected to the carriage's wheel.

Adjust the carriage in vertical position by pulling the piston backwards. The piston can only be pulled after releasing the securing device with a suitable pair of pliers.

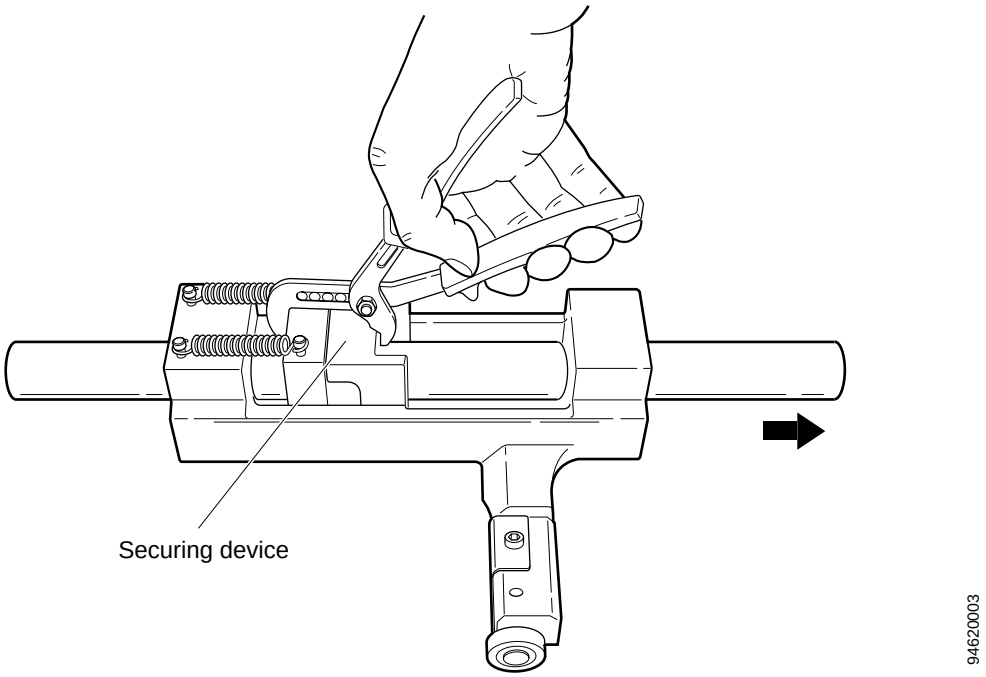

Figure 7 Releasing of securing device

5 Install carriage with the two 8 mm Allen screws.

6 Slightly unscrew the Allen screws holding the rotation motor and tighten the chain by prying the motor uppwards with suitable tool and pad.

7 Tighten the Allen screws.

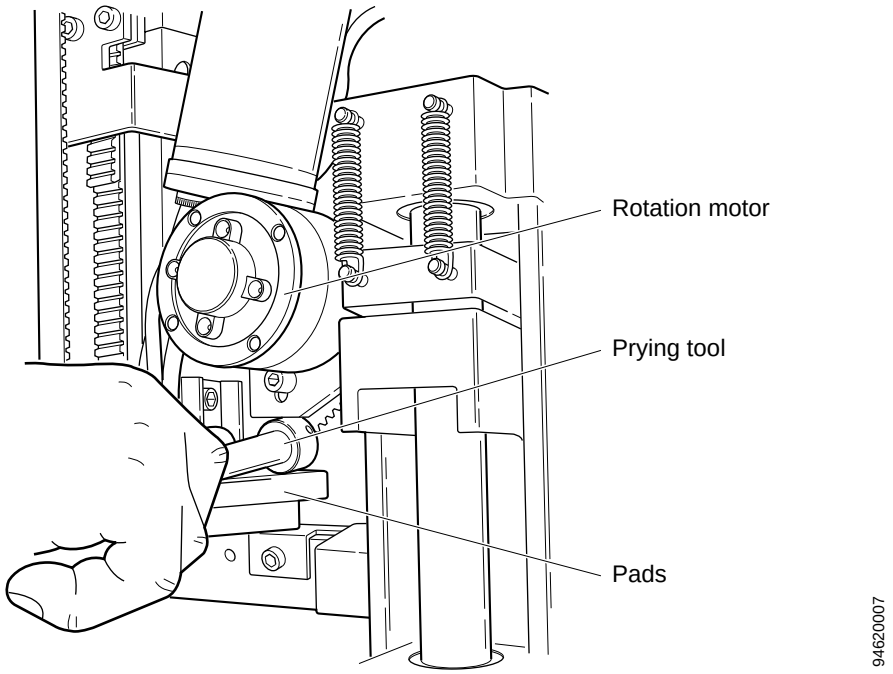

Figure 8 Tightening of chain

8 Connect cables X826 and X888 to the rotation motor.

9 Attach the connectors to the motor with a strap (62 21 753).

10 Start tightening the screw with a 24 mm socket wrench to stretch the balancing spring.

11 Cut off the strap that has been installed across the wire near the progressive wheel at the top of the stand.

12 Check that the guiding device at the lower part of the balancing spring is properly installed.

13 Check that the wire tracks all wheels and that it is not twisted. The wire wheel at the top of the balancing spring can be rotated if nescessary.

14 Check that the swiwel arm system catch device is released

15 Continue stretch the balancing spring with the screw to reach previous lenght.

Test and adjustment

Precautions

Test and adjustment shall be performed with the normal weight of the swivel arm system, i.e. the following items installed:

- All covers of the swiwel arm system.
- Biopsy unit.
- Compression plate.
- Object table on the other wing.

Measuring the lift motor current

To check the balancing spring, the lift motor current is measured while running the swivel arm system.

1 Set the tube head in position 0°.

2 Attach a suitable ruler to the stand frame, see figure below.

3 Set digital multimeter (DMM) to measure DC current, 10 A range.

4 Install digital multimeter in series with the lift motor.

5 Run the swivel arm system up and down with the swiwel arm system buttons and check the motor current for the swivel arm system motor.

6 Note the mA values when the lifting carriage passes the middle of the swivel arm systems ending positions, i.e the lifting carriage stop screw is approximatly 1400 mm from the stand bottom plate, see figure below.

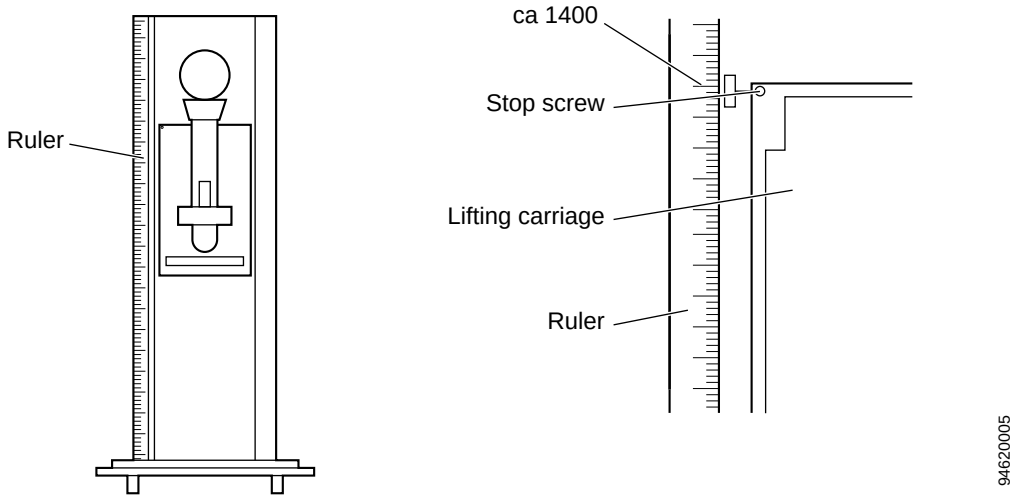

Figure 9 Attachment of ruler

7 The difference in electical motor current value when the swivel arm system is running upwards and when it is running downwards (I_{up}-I_{down}) shall be 0-0.15 mA. I_{up} must not exceed 1.50 A.

8 If the current is not within limits, adjust balancing spring until the condition is fulfilled.

Measuring the rotation motor current

To check that the rotation motor is properly installed, the motor current is measured while rotating the swiwel arm system.

1 Set the lifting carriage to the middle of the swivel arm systems ending positions, i.e the lifting carriage stop screw is approximatly 1400 mm from the stand bottom plate, see figure above.

2 Set digital multimeter (DMM) to measure DC current, 10 A range.

3 Connect pin 2-2 (connector X888) and install digital multimeter in series with the rotation motor (connector X888, pin 1-1).

4 Rotate the swiwel arm system to -90° with the swiwel arm system buttons.

5 Rotate the swiwel arm system towards 0°. The current must not exceed 5.8 A.

6 Repeat the procedure while running the swivel arm system from +90° towards 0°.

Adjusting the cams

Note

It is very important that these adjustments and movements are performed with big cautiousness in order not to damage the switch and the cam slots.
The swivel arm must not be loaded with anything but the compensation weights.

---

1 Switch on mains supply.
Press the ON-button on the control panel to activate the system. For details, see section *Operation* in *Operating Instructions MAMMOMAT 3000.*

2 Check that the stereo lever is in normal mode and that the swivel arm is in position 0°. The angle of the swivel arm system is shown on the display at the lower front part of the stand.
For details, see sections *Selection of normal operation mode* and *Adjusting the direction of projection* in *Supplement to the Operating Instructions MAMMOMAT 3000, Stereotactic Biopsy Attachment*.

3 Rotate the swivel arm 90° CW (view from the front) to position +90°. For details, see section *Adjusting the direction of projection* in *Supplement to the Operating Instructions MAMMOMAT 3000, Stereotactic Biopsy Attachment.*

4 Set the stereo lever in stereo mode.
Tilt the tube head 10° CCW to position stereo mode -10°. Keep the button pressed for approx. 2 s after reaching end position. For details, see section *For stereo exposure* in *Supplement to the Operating Instructions MAMMOMAT 3000, Stereotactic Biopsy Attachment.*

5 Adjust the cam according to the following:
Move the cam (CCW) so that the slot in the cam passes the switch (CCW) and the LED on circuit board D810 is not lit.
Adjust the cam back (CW) to a position where the LED just lights up. This adjustment must be done smoothly and carefully so that the cam can be stopped exactly where the LED lights.
Tighten the two screws of the cam, see *Figure 23*.

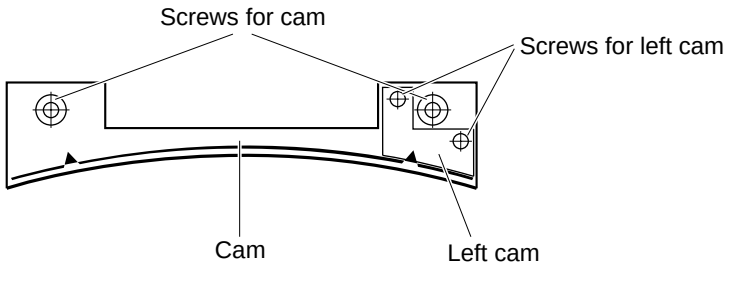

Figure 23 Screws for adjustment

6 Set the tube head 10° CW to position stereo mode 0°.
Set the stereo lever in normal mode.

7 Rotate the swivel arm 180° CCW to position -90°.

8 Set the stereo lever in stereo mode.
Tilt the tube head 10° CW to position stereo mode +10°.

9 Adjust the left cam according to the following:
Move the left cam (CW) so that the slot in the left cam passes the switch (CW) and the pilot lamp on circuit board D810 is not lit.
Adjust the left cam back (CCW) to a position where the LED just lights up. This adjustment must be done smoothly and carefully so that the cam can be stopped exactly where the LED lights.
Tighten the two screws of the left cam, see *Figure 23*.

10 With the swivel arm in position -90°, check that the LED is lit when the tube head is tilted to stereo mode positions -10° and +10°.
Set the tube head to stereo mode position 0°, set the stereo lever in normal mode and rotate the swivel arm back to position +90°. With the swivel arm in this position, check that the LED is lit when the tube head is tilted to stereo mode positions -10° and +10°.
If the LED is not lit in all four positions, repeat the procedure from step 3.

Tests

1 Check that the indicated compression thickness at the stand display shows correct values (0 - approx. 180 mm). For details, see section *Checking the compression device* in *Installation and Start-up Instructions MAMMOMAT 3000*.

2 Check exposure release.

3 Press the OFF-button on the control panel to deactivate the system. Switch off mains supply.

4 Remount all the covers to the stand, which include front covers, side covers and rear cover.
For details, see section *Attaching the stand covers* in *Installation and Start-Up Instructions MAMMOMAT 3000*.

5 Remount all the covers to the swivel arm, which include front cover, side covers and shaft cover.
For details, see section *Attaching the swivel arm covers* in *Installation and Start-Up Instructions MAMMOMAT 3000*. The attaching of the shaft covers is not described in this section but is easily done by fastening five screws on each cover.

6 Switch on mains supply.
Press the ON-button on the control panel to activate the system.

7 Check the exposure release and the rotation and lift movements for proper function, see *Installation and Start-up Instructions MAMMOMAT 3000*.

8 Press the OFF-button on the control panel to deactivate the system. Switch off mains supply.